APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,352	10/14/2003	George C. Valley	HRL 128	1230

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EXAMINER
ALHIJA, SAIF A

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 December 2007*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-42* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *14 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-42 have been presented for examination.

Response to Arguments

2.   A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e),

was filed in this application after final rejection. Since this application is eligible for continued examination under

37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 18 December 2007 has been

entered.

NON-PRIOR ART ARGUMENTS

i)   Following Applicants amendments the 101 rejections of claims 1-42 are withdrawn.

ii)   Applicants Affidavit is rendered moot in view of the new grounds of rejection presented in this

office action.

iii)   Following Applicants amendments to the claims a **WRITTEN DESCRIPTION** rejection has

been provided. Applicants have claimed that the amendments of the **"matrix based wavelet"** to a **"wavelet-based**

matrix" constitutes a typographical error. The Examiner notes that the amendments to the claims amounts to a

larger issue than merely a typographical error. First, Applicants have provided what they term **"indirect support"**

for this amendment as per Page 13 of their remarks dated 18 December 2007. The Examiner notes that no evidence

has been provided that the **"wavelet-Galerkin method to derive a matrix"** as recited in specification of the instant

application is identical to the **"wavelet based matrix"** currently disclosed in the claims. This argument is supported

by Applicants specification, paragraph 76 which states that **"the wavelet-Galerkin method is for exemplary**

purposes only, and is not intended to limit the scope of the present invention." This argument is further

supported by the claims recitation of generating by **either** a wavelet-Galerkin method, directly from a system

diagram, **or** from equations that describe the system. The Examiner notes that MPEP 2163.06 states **"If new matter**

is added to the claims, the examiner should reject the claims under 35 U.S.C. 112, first paragraph - written

description requirement. In re Rasmussen, 650 F.2d 1212, 211 USPQ 323 (CCPA 1981)." MPEP 2163 I-B

further states **"New or amended claims which introduce elements or limitations which are not supported by**

the as-filed disclosure violate the written description requirement. See, e.g., In re Lukach, 442 F.2d 967, 169

USPQ 795 (CCPA 1971)". This rejection has been provided in this office action.

PRIOR ART ARGUMENTS

iv)   Applicant's arguments with respect to claims 1-42 have been considered but are moot in view of

the new ground(s) of rejection.

v)   The Affidavit under 37 CFR 1.132 filed 18 December 2007 is rendered insufficient and moot

following the new grounds of rejection. Applicants affidavit argues the newly amended and presented claims rather

than the previously presented claims. The Examiner notes that the Affidavit is therefore ineffective since the argued

claims have been newly presented following amendment, the prior art reference rejections have been rendered moot

in view of a new grounds of rejection, and further since the Affidavit and Applicants amendments have resulted in a

112 1st paragraph written description rejection.

EXAMINERS NOTES:

vi)   Examiner has cited particular columns and line numbers in the references applied to the claims for

the convenience of the applicant. Although the specified citations are representative of the teachings of the art and

are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is

respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as

potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior

art or disclosed by the Examiner.

vii)   The Examiner respectfully requests, in the event the Applicants choose to amend or add new

claims, that such claims and their limitations be directly mapped to the specification, which provides support for the

subject matter. This will assist in expediting compact prosecution.

viii)   Further, the Examiner respectfully encourages Applicants to direct the specificity of their response

with regards to this office action to the broadest reasonable interpretation of the claims as presented. This will avoid

issues that would delay prosecution such as limitations not explicitly presented in the claims, intended use

statements that carry no patentable weight, mere allegations of patentability, and novelty that is not clearly

expressed.

PRIORITY

3.   Acknowledgment is made of applicant's claim for priority to provisional application #60/418044 filed on

12 October 2002.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4.   **Claims 1-42 are rejected** under 35 U.S.C. 112, first paragraph, as failing to comply with the written

description requirement. The claim(s) contains subject matter which was not described in the specification in such a

way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was

filed, had possession of the claimed invention.

        i)   See Section 2.iii above with respect to the amendment of a **"matrix based wavelet"** to a

"wavelet-based matrix."

Claim Rejections - 35 USC § 102

        The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the

rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.   **Claims 1-42 are rejected** under 35 U.S.C. 102(b) as being clearly anticipated by **Ruehli et al. "Progress in the Methodologies for the Electrical Modeling of Interconnects and Electronic Packages.", hereafter Ruehli.**

Regarding Claim 1:

The reference discloses A method for simulating a time-domain response of a mixed-signal system comprising acts of:

generating a wavelet wavelet-based matrix operator representation of time-domain equations characterizing a mixed signal system, with the wavelet-based matrix operator representation including wavelet connection coefficients;

(Ruehli. Page 741, Right Column, Last Paragraph, "wavelength of interest". Page 743, Left Column, Last Paragraph, "inductive coupling coefficients.". Page 759, Left Column, Second Paragraph, "wavelet expansions")

selecting a number of wavelets, a set of wavelet basis functions, and the wavelet-based matrix operator with which to represent a time domain performance of the system

(Ruehli. Page 743, Right Column, Last Paragraph, "finite-difference time domain method")

iteratively applying the wavelet-based matrix operator within each clock period and sequentially over a large number of clock cycles to calculate a time-domain response of the mixed signal system, wherein calculation within each clock period is weakly non-linear, and wherein the calculation within each clock period is performed by matrix multiplication;

(Ruehli. Page 743, Right Column, Second Paragraph, "iterative solver." Page 763, Left Column, equations 4.40 and 4.41. Page 767, Left Column, Second Paragraph, "time interval of interest")

outputting the time-domain response of the mixed signal system to an user, whereby the user can utilize the time-domain response of the mixed signal system to evaluate the behavioral performance of the system.

(Ruehli. Page 741, Left Column, Third Paragraph, "electromagnetic behavior of the interconnect structure.")

Regarding Claim 2:

The reference discloses A method for simulating a mixed-signal system as set forth in claim 1, where the system is an electrical circuit.

(Ruehli. Page 741, Left Column, Third Paragraph, "electromagnetic behavior of the interconnect structure.")

Regarding Claim 3:

The reference discloses A method for simulating a mixed-signal system as set forth in claim 2, where the electrical circuit is a delta-sigma modulator.

(Ruehli. A DSM is a type of mixed signal system discussed in Page 745, Left Column, "mixed signal integrated circuits.")

Regarding Claim 4:

The reference discloses A method for simulating a mixed-signal system as set forth in claim 3, wherein in the generating act, the wavelet-based matrix operator is developed by a wavelet-Galerkin method.

(Ruehli. Page 746, Right Column, Last Paragraph, "Galerkins testing")

Regarding Claim 5:

The reference discloses A method for simulating a mixed-signal system as set forth in claim 4, wherein in the generating act, the matrix-based wavelet operator is developed directly from a system diagram or from equations that describe the system.

(Ruehli. Page 745, Left Column, First Paragraph, "state equations.")

Regarding Claim 6:

The reference discloses A method for simulating a mixed-signal system as set forth in claim 5, wherein in the selecting act the number of wavelets is selected independently for each iteration of the acts of the method.

(Ruehli. Page 744, Right Column, Last Paragraph, "Unconditionally stable time integration methods are, in general, implicit, requiring the simultaneous update of all discrete field values.")

Regarding Claim 7:

The reference discloses A method for simulating a mixed-signal system as set forth in claim 6, wherein in the selecting act, the set of wavelet basis functions is selected independently for each iteration of the acts of the method.

(Ruehli. Page 744, Right Column, Last Paragraph, "Unconditionally stable time integration methods are, in general, implicit, requiring the simultaneous update of all discrete field values.")

Regarding Claim 8:

The reference discloses A method for simulating a mixed-signal system as set forth in claim 7, further comprising acts of receiving a specification for a system model and outputting the time-domain response of the system.

(Ruehli. Page 741, Left Column, Third Paragraph, "electromagnetic behavior of the interconnect structure.")

Regarding Claim 9:

The reference discloses A method for simulating a mixed-signal system as set forth in claim 1, wherein in the generating act, the wavelet-based matrix operator is developed by a wavelet-Galerkin method.

(Ruehli. Page 746, Right Column, Last Paragraph, "Galerkins testing")

Regarding Claim 10:

The reference discloses A method for simulating a mixed-signal system as set forth in claim 1, wherein in the generating act, the wavelet-based matrix operator is developed directly from a system diagram.

> **(Ruehli. Page 745, Left Column, First Paragraph, "state equations.")**

Regarding Claims 11-14:

> **See rejections for claims 5-8 respectively.**

Regarding Claims 15-42:

> **See citations and rejections presented above for claims 1-14.**

Conclusion

6.   All Claims are rejected.

7.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAIF A. ALHIJA whose telephone number is (571)272-8635. The examiner can normally be reached on M-F, 11:00-7:30.

       If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571) 272-22792279. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

       Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAA

March 1, 2008

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/Kamini S Shah/
Supervisory Patent Examiner, Art Unit 2128

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